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# **ECS Risk Management**

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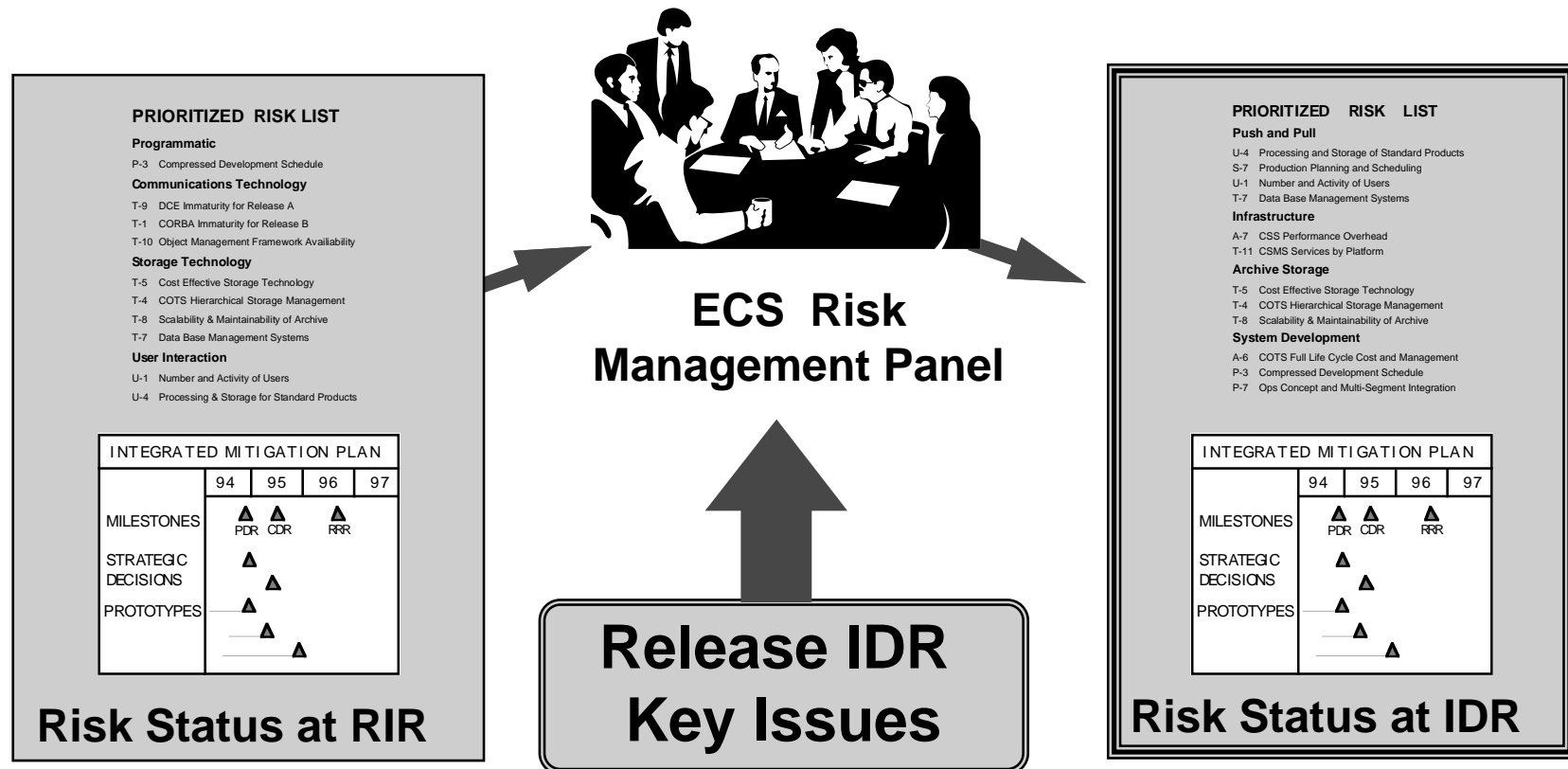
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**2 November 1995**



# ECS Program Risk Management



# Release B Priority Risks and Mitigation Activities



Risk Title	Mitigation Activities Applicable Prototype, Study/Document	Strategic Decision Event/Date
<b>Compressed Development, P3</b> Schedule compression caused by delayed start, early launches, and SRR recovery.	Reallocation of Release functionality  Detailed planning of Release Schedule's content  Development effort modelling  Refine LOC Estimates by Release  DID 307/329 Documented Segment-to-System I&T Hand-off	ECS Release Plan Update, Release B IDR Build/Thread I&T Plan, Release B CDR  Release B CDR  Release B IDR  Release B IDR
<b>Release-to-Release Transition, P-5</b> Integration, installation, and test of future releases at operational DAACs will potentially impact operations	Release-to-Release Transition Plan  Develop Mode Management Requirements (Level 4)	Release B CDR  Complete

# Release B Priority Risks and Mitigation Activities (Continued)



Risk Title	Mitigation Activities Applicable Prototype, Study/Document	Strategic Decision Event/Date
<p><b>Operations Concept, P-7</b></p> <p>Lack of a design validated against a DAAC user based Operations Concept</p>	<p>IDR Format/Content</p> <p>Develop a DAAC user based operations concept for the ECS paradigm</p> <ul style="list-style-type: none"> <li>- Operations Concept Document, CDRL 604 Part 2A</li> <li>- Operations Concept Document, CDRL 604 Part 2B</li> </ul> <p>Operations Scenarios, CDRL 605 Release B</p> <p>CSMS/SDPS Internal ICDs for ECS, CDRL DID 313 Release B</p> <p>Operations Workshop for Release B</p> <p>Develop Operations Manuals for Release A</p>	<p>IDR</p> <p>Release A, Update at Release B IDR</p> <p>Release B, April 1996</p> <p>Release B CDR, Draft Available IDR</p> <p>Release B IDR/CDR</p> <p>Release B IDR/CDR</p> <p>December 1995</p>

# Release B Priority Risks and Mitigation Activities (Continued)



Risk Title	Mitigation Activities Applicable Prototype, Study/Document	Strategic Decision Event/Date
<p><b>Undefined External Interfaces, P-11</b></p> <p>Successful performance of ECS is dependent upon the availability and completeness of functional and performance requirements for external interfaces</p>	<p>The System Implementation Team working group meets bi-weekly to develop the I/Fs between NISS and the EOSDIS front-end.</p> <p>The ICWG meets bi-weekly to monitor the I/F development progress.</p> <p>External IRD for EDOS</p> <p>External IRD for the Sensor Data Processing Facility (SDPF)</p> <p>External ICD for EDOS</p> <p>External ICD for the Flight Dynamics Facility (FDF)</p> <p>EBnet ICD</p>	<p>Complete</p> <p>August 1995</p> <p>October 1995, Update April '96</p> <p>October 1995, Update April '96</p> <p>April 1996</p>

# Release B Priority Risks and Mitigation Activities (Continued)



Risk Title	Mitigation Activities Applicable Prototype, Study/Document	Strategic Decision Event/Date
<b>DAAC-Unique Extensions, P-12</b>  DAAC unique extensions and their APIs require identification and definition.	Identify Public APIs at the Local Sites  Develop API Interface Description Document  Describe Extension Integration	Release B IDR, Update CDR  Release B CDR (Preliminary)  Release B CDR

# Release B Priority Risks and Mitigation Activities (Continued)



Risk Title	Mitigation Activities Applicable Prototype, Study/Document	Strategic Decision Event/Date
<p><b>External Interface Security, A-8</b></p> <p>Risk to the ECS system posed by external systems and external users, and the data flows between ECS and these externals.</p>	<p>Apply risk assessment process to specific data flows to assess the exposure to abuse from intentional spoofing, tampering, blocking, and unintentional corruption or loss.</p> <ul style="list-style-type: none"> <li>- External Interface Security Assessment for Landsat 7</li> <li>- External Interface Security Assessment for EDOS</li> <li>- External Interface Security Assessment for TRMM</li> <li>- External Interface Security Assessment for ASTER</li> </ul>	<p>December 15, 1995</p> <p>December 15, 1995</p> <p>December 15, 1995</p> <p>December 15, 1995</p>

# Release B Priority Risks and Mitigation Activities (Continued)



Risk Title	Mitigation Activities Applicable Prototype, Study/Document	Strategic Decision Event/Date
<b>DAAC-Level Planning and Scheduling, A-9</b>  DAAC subsystem plan integration and schedule coordination across DAACs	Document the Decomposition of Level -3 Requirements (Design Specification)  Document Traceability of Level-4 Requirements to CIs (Design Specification)  COTS Evaluation (Study)  Document Scenarios in the Operations Concept Document, CDRL 604 Part 2B	Release B CDR Minus 30 Days  Release B CDR  Release B CDR Minus 30 Days  Release B, April 1996
<b>Earth Science Query Language, T-2</b>  ECS must be based on proven technologies but be able to evolve to emerging query language standards.	Conduct Query Language Trade Study	Release B IDR, Update CDR



# Release B Priority Risks and Mitigation Activities (Continued)



Risk Title	Mitigation Activities Applicable Prototype, Study/Document	Strategic Decision Event/Date
<b>COTS Hierarchical Storage Management (HSM), T-4</b>  HSM is not scalable to support the multiple supercomputing applications of the larger DAACs.	Multiple-FSMS Integration Evaluation (Prototype, 813-RD-009-001)  FSMS Implementation Study (194-813-S14-003)  Multi-Resident Andrew File System (MR-AFS) Proof of Concept (Report)  Network-Attached Storage Prototype	Complete  Complete  Complete  Release B IDR, Update CDR
<b>Cost-Effective Storage Technology, T-5</b>  Costs associated with archive component media and form factors influencing peta-byte storage	Storage Technology Insertion Plan  Data Compression Studies  Permanent Data Storage Technology/Study	Release B IDR  Release B IDR/CDR (Time Frame)  Release B Design February 1996, Procurement November 1996

# Release B Priority Risks and Mitigation Activities (Continued)



Risk Title	Mitigation Activities Applicable Prototype, Study/Document	Strategic Decision Event/Date
<b>Archive Scalability and Maintainability, T-8</b>  A single computer cannot handle an arbitrary I/O load, especially supporting pull side performance	Network-Attached Storage Prototype  FSMS COTS Encapsulation Prototype  Data Server Prototype EP6  Data Back-Up Strategy Study	Release B CDR, Update  Release B IDR/CDR (Time Frame)  Release B IDR/CDR (Time Frame)  Release B IDR/CDR (Time Frame)
<b>Data Assimilation Systems Integration, U-9</b>  DAS needs to be integrated with ECS to ensure that it achieves its operational assimilation, re-analysis, and R&D requirements.	Define and Document the DAO Processing and Data Requirements  Assess the DAS Transition Plan for Compliance with DAO Requirements (Reports)  Leverage DAS Prototyping  Integration of DAS with ECS	Release B IDR/CDR (Time Frame)  Release B CDR  Release B CDR  AM-1 Launch

# Release B RIR

## Priority Risks Status



### Risks carried forward as priority

- **P-3 Compressed Development Schedule**
- **P-5 Release to Release Transition**
- **P-7 Operations Concept**
- **T-5 Cost Effective Storage Technology**
- **T-8 Archive Scalability and Maintainability**
- **U-9 DAS Middle Engine (Data Assimilation System Integration)**

### Risks downgraded to general program risks and continue to monitor

- **A-6 COTS Full Life Cycle Cost and Management**
  - COTS LCC estimates made but requires continued monitoring
- **A-7 CSS Performance Overhead**
  - Performance analysis results indicated need to reduce layers over OODCE
- **S-7 Production Planning and Scheduling**
  - COTSs product selected; Successful Rel A Planning delta-CDR conducted